California Renewable Gas Overview

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California Public Utilities Commission

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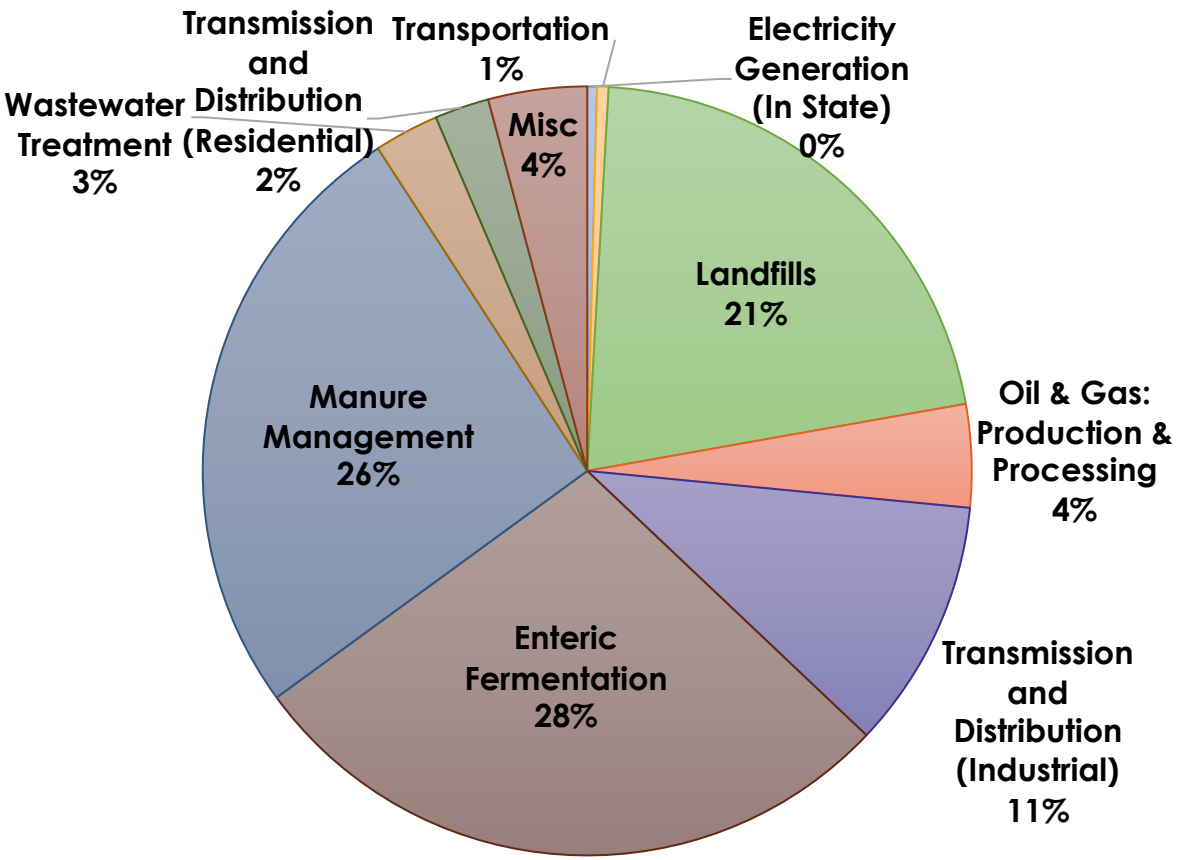
California Public Utilities Commission

Renewable Gas Standard

- SB 1440 (Hueso, 2018) required the CA Public Utilities Commission (CPUC) to consider whether to adopt a biomethane procurement program for California's gas IOUs.
- CPUC Staff recommended adoption of a biomethane procurement program (June 2021)
- CPUC adopted a Renewable Gas Standard in D.22-02-025 (Feb 2022)



2019 California Methane Emissions

Source: https://ww2.arb.ca.gov/ghg-inventory-data

Renewable Gas Standard – *Targets Adopted*

- **Short-term (by 2025): 8 million tons of organic waste** diverted from landfills [~18 million MMBtu (17.6 Bcf)] to existing 153 wastewater treatment plants and standalone digesters. This helps meet State organic waste diversion goals, given existing capacity of other diversion facilities.

Technology	Estimated Anticipated Capacity, 2025	Estimated Needed Capacity, 2025	Difference
Compost	5.3	9.6	(4.3)
Anaerobic Digestion	1.0	2.7	(1.7)
Co-Digestion	0.21	2.4	(2.2)
Chipping and Grinding	3.5	3.3	0.2
Total	10.0	18.0	(8.0)

- **Medium-term (by 2030):** renewable gas standard to procure **75.5 million MMBtu (72.8 Bcf)** of biomethane annually (12% of 2020 core customer* demand) to support CARB's methane reduction goal of **40% below 2014 levels** by 2030.

  Examples of additional feedstock sources: Forest waste from wildfire prevention mechanical thinning, Agricultural waste banned from open burn in the San Joaquin Valley, and urban wood waste

*core customers (i.e., residential and small commercial)

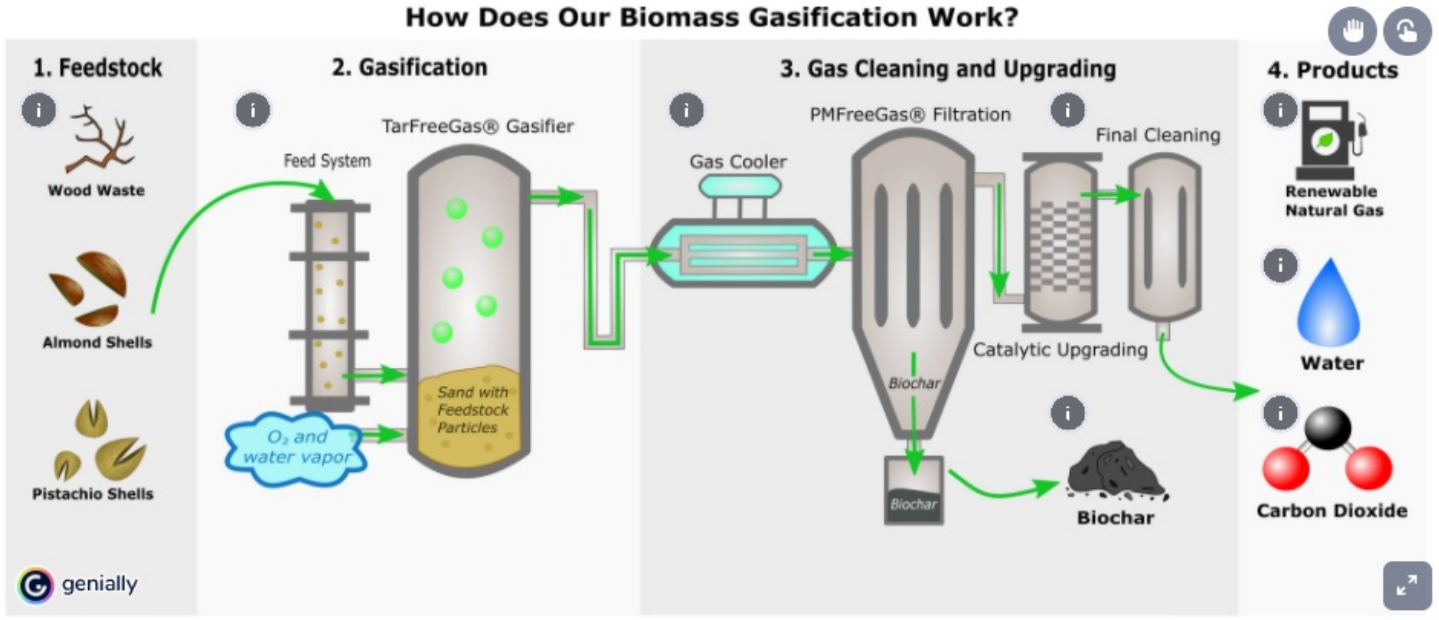
Source: CalRecycle "Analysis of the Progress Toward the SB 1383 Organic Waste Reduction Goals" (2020) Table 1 at 7 https://www2.calrecycle.ca.gov/Publications/Download/1589

Medium-Term Targets

- **Medium-term (by 2030):** includes various feedstocks such as forest, agricultural, and urban wood waste to reduce methane and black carbon.

Forest Woody Biomass Waste

Agricultural Waste



The gasification process will produce RNG and several coproducts including biochar, argon and liquid nitrogen, and heat.

Source: San Joaquin Renewables https://sjrgas.com/the-project/.

Biomethane Procurement Program

Cost-Effectiveness

California's four largest gas IOUs shall:

- Establish a **cost-effectiveness test** to guide procurement decisions through a jointly filed **Standard Biomethane Procurement Methodology (SBPM)**
- Submit an economic analysis projected to 2030 to understand rate change and procurement in a **Biomethane Procurement Plan**

CPUC Advice Letter approval procedure for procurement:

- Tier 1: less than $17.70/MMBtu (market estimate)
- Tier 2: $17.70 – $26/MMBtu
- Tier 3: exceeds $26/MMBtu (IWG 2021 social cost of methane)**

*Fossil natural gas currently priced around $10/MMBtu and typically ranges between $3 and $6/MMBtu
** IWG 2021 social cost of methane per MMBtu is converted from $1,500/ton at the 3% discount rate

Other Procurement Requirements

- Producers shall agree to prospectively purchase or lease near-zero emissions (NZE) or zero emissions (ZE) Class 8 trucks.
- Producers shall cap combustion electric generation. Additional or new electric generation shall either use fuel cells or other non-combustion technologies.
- Gas utilities shall maintain exclusive ownership of all environmental attributes from contracted biomethane sources and may not sell, trade, or transfer any of these attributes.
- Gas utilities shall require biomethane producers to track volumetric injections of biomethane into pipelines.
- Biomethane procurement contracts shall be for a maximum of 15 years, with biomethane deliveries not to extend beyond 2040.
- Each gas utility shall have a Procurement Advisory Group.

Other CPUC Standard Pipeline Interconnection Policies

- Standard Renewable Gas Interconnection Tariff (D.20-08-035)
  - Gas quality standards to protect human health and ensure pipeline integrity
- Standard Renewable Gas Interconnection Agreement (D.20-12-031)
  - Standardized contract between interconnector and gas utilities: PG&E, SoCalGas, SDG&E, and Southwest Gas
- CPUC has provided $80 million in incentives for biomethane interconnection to gas pipelines

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